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ABSTRACT

This study focuses on the interrelationship between family influences and child care of varying quality on the toddler's capacity for compliance and self-regulation in a laboratory setting. A total of 89 families with children 18 to 36 months participated. Thirty-two families used day care centers identified as high quality, 25 families used day care centers identified as low quality, and 32 families did not use day care centers. Three quality-of-care indices were used: adult-child ratio, continuity of staff, and training of staff. The child and the primary parent participated in a 30-minute laboratory session. Observations of the child's capacity to comply with the parent's request to complete a boring and familiar task and the child's capacity for self-regulation both in the presence and the absence of the parent were made. Measures were adapted from those used by Schaeffer and Crook (1980, 1981), Londerville and Main (1981), and Lytton (1979). Composite scores for adult and child behavior were created by adding the scores on each task segment of the laboratory session. At 18 months, children from both high and low quality care settings demonstrated abilities to resist temptation and to use self-regulating techniques that were similar to those demonstrated by 36-month-old children who did not attend day care. Parents with children in high quality child care were more invested in their child's compliance at an earlier age than were other parents. Parents' behavior was also different for their 18-month-olds than for their older children. Compliance tasks revealed developmental trends consistent with Kagan's (1981) and Kopp's (1982) suggestion that the capacity to comply develops during the toddler period. References and tables are appended. (AS)

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Family and Child Care Influences on Toddler's Compliance in a Laboratory Setting

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Family and Child Care Influences on Toddler's Compliance in a Laboratory Setting

Within the last decade families using daycare to supplement parental care has increased to include almost half the families with young children. Although a sizable portion of research on daycare effects has been published, (see Belsky, Steinberg, & Walker, 1982; Clarke-Stewart, 1982), relatively little is known about relationships between family influences and extra-familial child care institutions. Specifically, this study focused on the influences and the interelationships of family influences and child care of varying quality on the toddler's capacity for compliance and self-regulation in a laboratory situation.

Several studies of children beginning daycare as infants have reported these children are less compliant with adults than families not using daycare (Finkelstein, 1982; Rubenstein, Howes, & Boyle, 1981; Schwartz, Strickland, & Krolick, 1974). In particular, Rubenstein, Howes, and Boyle (1981) found preschoolers in center day care since infancy to be less cooperative with their mothers when presented a boring task than children from families not using center day care. However, the daycare mothers in that study also behaved differently from the mothers not using daycare. They were more likely to make a game of the task and to make

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comments to the experimenters indicating they felt less invested in the child's task completion. These findings suggest that differences in children's compliance may have been as much a function of family interaction patterns and dynamics as of the daycare experience.

Child compliance and the related construct of self regulation have recently received renewed theoretical and empirical interest. There are several theories on compliance antecedents. Kagan (1981) and Kaop (1982) have argued that the capacity to comply with adult requests is a pattern of behavior under cognitive control developing during the second year of life and is an antecedent for self regulation capacity. Their work suggests that when exploring the effects of differences in family dynamics in families using or not using daycare, focus should be on the toddler period when the capacities for compliance and self regulation are developing. In the research reported in this study, the period between eighteen months and thirty-six months was selected for study. Parents were expected to be beginning to impose controls and expecting compliance in the youngest age group. The oldest age group was expected to be developing a self regulation capacity.

Attachment theorists and researchers suggest that the capacity to comply with an adult's request is an outgrowth of a secure relationship and is relatively

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independent of particular parental practices unless these interfere with the attachment relationship (Ainsworth, Blehar, Waters, & Wall, 1978; Arend, Gove & Sroufe,1979; Londerville & Main, 1981). The effect of daycare attendance on the attachment relationship has been the subject of numerous research studies. When high quality day care centers are sampled, day care attendance seems to have no detrimental effects on attachment (Belsky, Steinberg, & Walker,1982) However, the few studies examining the relationship between less desirable nonparental child care and attachment suggests the mother - child attachment relationship may be weakened by attendance in poor quality child care (Blehar, Vaughn, Gove, & Egeland, 1980). If daycare attendance interferes with the development of a positive parent-child relationship, then, according to attachment theory, daycare children would be expected to be less compliant and cooperative.

In contrast to attachment theory, social interaction researchers have found that child compliance is embedded in the particular social interaction sequences of parents and children. In the laboratory, (Shaffer & Crook,1979,1980;) the supermarket (Holden, 1983) and home settings (Lytton, 1979; Minton, Kagan, & Levine, 1971; McLaughlin, 1983) parents have been observed to use a variety of techniques including

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anticipating the child's violation of standards and timing control statements to the child's attentional state. In a manner consistent with Vygotsky's (1978) concept of the "zone of proximal development" compliance episodes provide opportunities for parents to structure their interactions with their child such that the child acquires appropriate behaviors. Westerman, Pierro, and Garcia's (1983) research which contrasts parent-child dyads with and without histories of problematic compliance interaction patterns of parents and children can be identified. If daycare and home children differ in their ability to comply in a structured task these differences may be the result of individual differences in parent-child compliance control interaction patterns, child care use, and child compliance.

Previous research on daycare has been criticized for sampling only demonstration or high quality daycare and neglecting the community based daycare available to most families (Belsky, Steinberg, & Walker, 1982). The sample reported in this study was composed entirely of community daycare centers. Participating centers were rated on the basis of quality of care indices. The quality of care indices selected for rating centers as high or low quality were adult child ratio, training of caregivers, and continuity of caregivers. Each of these indices has been associated with variations in

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caregiver-child interaction during the toddler period and with outcome variables (Cummings, 1980,1983; Howes, 1983, 1983a; McCartney, in press; Ruopp, Travers, Glantz, & Coelen, 1979). Differences were expected in both family and child outcome measures between the high and low quality centers.

Sample

Eighty-nine families participated in this research. The following four age groups were sampled: eighteen months, twenty-four months, thirty months, and thirty-six months. Families entered the study as the child entered the age group (+/- three weeks). Three family groups were sampled: 32 families using daycare centers identified as high quality; 25 families using daycare centers identified as low quality; and 32 families not using daycare centers. THe families not using daycare centers were recruited through parent child classes. In addition to not using daycare these families also did not use full time housekeepers, family daycare, or full time baby sitters.

Three quality of care indices were used: adult child ratio, continuity of staff; and training of staff. High quality centers had adult-child ratios of 1 to 4 or less in the two year old and younger groups and 1 to 7 or less in the 30 and 36 month groups. Low

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quality centers had adult-child ratios of 1 to 5 or more in the two year old and younger group and 1 to 8 or more in the 30 month or older groups. High quality centers had caregivers who had received formal classes in child development. Caregivers in low quality centers had no formal training in child development. Children in the high quality centers had one or two teachers in a year's time while children in the low quality centers had at least three different teachers over the course of a year.

All daycare centers serving children in the age range in a designated geographic area were contacted and agreed to participate in the study. All centers were visited by at least two members of the research team. On the visit the director was interviewed and the center was toured. Information on staff training was obtained from the director and later supplemented by information collected from the teachers themselves. Initial information on adult-child ratio and teacher continuity was supplemented by recording this information during an observation of the children at the center. Frequent contact with the centers for the purposes of recruiting families and conducting observations continued for a year. The final identification of quality occured only at the end of this process. Half of the eight centers met the criteria for high quality.

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Each family in the centers or parent-child classes with a child in the age range sampled was contacted and asked to particpate in the study. Eighty percent of the families agreed to participate. The three groups of families all lived in the same section of a large mtropolitan area. Demographic characteristics of the families are presented in Table one.

Insert Table 1 about here

Procedure

The child and the primary parent participated in a thirty-minute laboratory. Families were asked to select the parent who would come to the laboratory. In 90% of thr families using daycare and 96% of the families not using daycare, the mother particpated with the child in the procedure. The laboratory was conducted in a standard playroom and consisted of five tasks and a brief separation.

The first task measured the child's capacity to comply with parent's request to complete a boring task. Sixteen wooden blocks were stacked in a 4x4 configuration, knocked down by a sliding action, and tnen restacked. The parent was asked to have the child remain with the task for five minutes.

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The second task provided a base line for parent free play. Eight age appropriate toys -- a doll, pull toy, wooden dog on wheels, top, peg board and hammer,book, small trucks, and a set of cans with palstic vegetables that fit inside--were provided in a nondescript box. The toys were obviously old and jumbled together, but all parts were present and none broken. The parent was asked to have the child get all the toys out of the box.

The third task measured the child's capacity for self regulation in the presence of a parent. While the child was playing with the old toys, new toys hidden but within reach were uncovered. The parent was handed a questionnaire and asked to tell the child not to play with the new toys. After four minutes the child was given permission to play with the new toys.

Following the child's play with the new toys, the parent was asked to say goodbye and leave the room for three minutes. The child's reaction to the separation and the child's greeting of the mother were recorded.

The fourth task measured the child's capacity to comply with the parent's request to complete a familiar task: cleaning up. The parent was asked to have the child pick up all the toys and put them in the box.

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The fifth and final task measured the child's capacity for self regulation in the absence of the parent. A snack, consisting of raisins, small crackers, and a juice pitcher but no cup for juice was placed in front of the child. The parent was asked to tell the child to sit there and not eat while s/he left the room and returned two minutes later with the cup.

The first two authors and a second graduate served as the examiner in this procedure. All were blind to the group classification of the family. The examiner coded the procedures according to the measures described below. Intercoder reliabilty was established and monitored throughout data collection on video recordings of the procedure made for another study. Intercoder reliabilities are presented with the measures in Table 2.

Insert Table 2 about here

Measures

Adult - child interaction around child compliance and adult control.

Measures were adopted from those used by Schaeffer and Crook (1980, 1981), Londerville and Main (1981), and

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Lytton (1979). These rating scales are presented in Table 3. For the purpose of analysis in this paper, composite scores for adult behavior and child behavior were created by summing together the scores on each task segment of the laboratory session. After comparing individual behaviors three child and two parent composite measures were created by summing the component behaviors.

Insert Table 3 about here

The child composite measures were:

* Child complies--compliance rating on the boring task + compliance rating on the cleanup task + frequency of following direction on the boring task + frequency of following directions on the cleanup task.

* Child resists temptation--child does not touch the toys + child does not touch food + child uses self regulation techniques.

* Child resists task--Frequencies of ignoring, refusing,and distracting parent on the boring task + frequencies of ignoring, refusing and distracting parent on clean up task + total number of tantrums during the laboratory session.

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The two parent composite measures were:

* Parental investment in child completing task--investment rating on boring task + investment rating on the cleanup task + investment rating on forbidden toy task + frequencies of modeling, verbal, directions, physical directions, physical contact with the child, non-verbal directions, coaxing, praise, and criticism on the boring task and the clean up task + trying to distract the child with old toys during the forbidden toy task.

* Parental involvement in child completing task--involvement ratings on the boring task + involvement rating on the clean up task task + frequency of games on the boring task + blocking access to the forbidden toys with body.

Results

Child and family behaviors were compared across the family types to examine the three care settings. Two-way analysis of variance were used to compare groups. ANOVA tables are presented in Table 4.

Insert Table 4 about here

Child compliance differed by age ($\underline{F}$ (3,77) =

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12.54, p = .0001) but not by family choice of child care setting. A test for linear trend found child compliance increased with age.(F (1,85 = 28.77, p = .0001).

There were significant main effects for family type (F (2,77) = 6.83, p = .002), age(F (3,77) = 6.83, p = .007), and for family type by age interaction(F (6,77) = 3.67, p = .003),in the childs' resistance to temptation. Children from families using center care were more likely than children from families not using center care to resist temptation (Scheffe = .01) In families not using center care, and in families using low quality center care, resistance to temptation increased with age while there were no age changes in children's resistance to temptation in families using high quality center care (Scheffe = .01).

In order to further examine the relationships between family type, age of child, and the capacity to self regulate, the childrens' use of self regulation during the prohibiton of new toys was examined. There were significant effects for family type(F (2,77) = 5.603, p = .005), and family type by age interactions(F (6,77) = 2.87, p = .04). Children from families using center daycare were more likely than children from families not using center daycare to use self-regulation techniques (Scheffe = .01). Use of self regulation techniques increased with age in the families not using

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center care but not in the families using center care.

There was a significant interaction of family type by age interactions(F (6,77) = 2.622, p = .023) for overall parent investment in child compliance. Parent's using high quality day care had higher investment scores for their eighteen month old's compliance. Parents not using child care had investment scores for child compliance at similar levels to the parents using high quality care when their children were older.

There was a significant main effect for age for parent modeling. F (2,77) = 2.706, p = .05). Parent's modeled behavior to eighteen month olds more.(Duncan =.05)

There was a significant main effect for age for parent physical contact during compliance episodes. F (2,77) = 3.070, p = .033). Parent's directed their child's behavior physically (Scheffe =.05) at eighteen months than they did when thir children were older.

There were significant main effects for family type (F (2,77) = 3.753, p = .028), and for family type by age interaction(F (6,77) = 3.657, p = .003),in the parent's use of praise. Families using high quality care praised their eighteen month olds more. (Scheffe = .05)

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There was a significant main effect for family type for parent's positive affect(F (2,77) = 8.501, p = .0001). Parents not using daycare and parents using high quality daycare had more positive affect during the entire laboratory session (Scheffe = .05).

Relationships between parental and child variable.

Beyond the group comparisons there was also interest in the relationship between parental techniques and child behavior. The child behaviors and the adult techniques were correlated. Correlations are shown in Table 5.

Insert Table 5 about here

The child's involving the parent in a compliance activity was positively correlated with the parents non-verbal contact (r = .20). The child's resisting a compliance task was positively correlated with parent's modeling (r = .20), Parent's verbal instruction (r = .20), parent's physical contact (r = .22), and parent non-verbal contact (r = .21). Children's compliance was negatively correlated with parent's modeling (r = -.34) and parent's physical contact (r = -.23). Child's self regulation was positively correlated with parent's modeling (r = .19) and negatively correlated with

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parent's praise (r = -.18).

The parent's investment in the child's compliance with a task was positively correlated with the child's attempt to invest the parent in the task (r = .68) and the child's resisting the task (r = .69). The parent's involvement in the child's compliance with a task was positively correlated with the child's attempt to invest the parent in the task (r = .71),the child's resisting the task (r = .81),and negatively correlated with the child's compliance on the task (r = -.19). The parent's positive affect was positively correlated with the child's attempt to invest the parent in the task (r = .65) and the child's resisting the task (r = .66). The parent's negative affect was positively correlated with the child's attempt to invest the parent in the task (r = .81) and the child's resisting the task (r = .87).

Discussion

Family differences

Children from the different care settings did not differ in terms of compliance. Children in center care differed from children not using center care in terms of self-regulation. In addition, families using high quality center care differed from families using low

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quality center care.

The children attending day care , especially the high quality centers, demonstrated abilities to resist temptation and to use self regulatory techniques at 18 months that were similar to the 36-month non-daycare children. These capacities did not increase with age for the day care children although they did increase with age for the non- daycare children. It appears that the children whose families used center care acquired the capacity for self regulation at an earlier age than the children whose families did not use daycare. This finding is consistent with Clarke -Stewarts (1982) finding of greater social maturity in preschool age day care children.

Parental investment in compliance was very different in the three groups of parents. Parents with children in high quality child care were more invested in their child's compliance at an earlier age than that of the other parents. This investment in the child's complying was accompanied by increased praise by these parents. Since children in high quality settings demonstrated more self regulatory techniques, there may be some relationship between the family investment at the earlier age and later self regulation.

Parents using high quality child care and parents

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not using care also were similar in their positive affect during the entire situation demonstrating more positive affect ~~than the entire~~ than parents using low quality day care. The interaction between quality of child care, compliance, parental investment and affect in this age group warrants further exploration in order to determine a more causal relationship between the various variables.

Devlopmental Trends

The compliance tasks revealed developmental trends consistent with Kagan (1981) and Kopp's (1982) suggestion that the capacity to comply develops during the toddler period. Child compliance, child resistance to temptation, and the child use of self regulation techniques increased with age.

The compliance tasks also revealed different parental techniques. Parent behaviors were different for their eighteen month olds than for the children at an older age. While there was no difference in verbal instructions or nonverbal instruction, parents directed their children physically and modeled the expected behavior more at the younger age. This indicates there may be a change in expectation due to cognitive changes accompanying the capacity to comply consistent with Kopp's (1982) suggestion.

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In general,children's non - compliance lead to more intense interactions with parents. When children did not immediately comply with a parental request for compliance, parents began to utilise a variety of techniques in order to achieve compliance. Usually this was done by modeling and by physically directing the child's actions. This is consistent with the social interaction viewpoint that child compliance is embedded in the particular social interaction sequences of the parent and child.

Several topics requiring future research are indicated by the findings in this study. First is the previously mentioned relationship between self regulation, family techniques, and quality of child care. Another potential area for study is the relationship between child non - compliance and parental techniques to achieve compliance.

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Table 1

Comparison of Demographic Characteristics of Families

Characteristic	Family Groups: High Quality center	Low Quality center	No center	Test of comparison
Age of child[a]				ns
18 months	8	8	8	
24 months	8	6	8	
30 months	8	6	8	
36 months	8	5	8	
Sex of child[a]				ns
girl	17	7	18	
boy	14	18	14	
Sibling status of child[a]				ns
only	22	20	14	
oldest	1	2	7	
youngest	9	2	11	
Family structure[a]				ns
intact	27	20	31	
single parent	4	5	1	
Occupation[b]				
mother	2.8	2.3	5.0	.01
father	1.5	1.8	2.2	ns

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Characteristic	Family Groups: High Quality center	Low Quality center	No center	Test of comparison
Years of education[c]				
mother	16.8	15.7	16.8	ns
father	16.0	14.6	15.3	ns
Ethnic background[a]				
mother				ns
Anglo	26	21	26	
Hispanic	3	2	2	
Asian	0	0	2	
Black	3	1	1	
father				ns
Anglo	18	18	26	
Hispanic	7	2	2	
Asian	1	2	3	
Black	6	3	0	
Age[c]				
mother	33.2	29.4	32.8	ns
father	35.2	33.4	36.1	ns

[a] number in each category is tabled; test of comparison is x^2.

[b] median ranking of Hollingshead scale is tabled; test of comparison is Kruskal-Wallis one-way ANOVA.

[c] Average number is tabled;test of comparison is analysis of variance.

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Table 2

Measures of Child Compliance and Parental Control

Behavior	Inter - rater reliability
Rating of child compliance on the boring and clean-up tasks	.97
1. does not do task	
2. starts task but leaves	
3. is reluctant to do task but partially completes it	
4. completes task but finds many distractions	
5. stays with the task until completion	
Child techniques during the compliance task (1 = never, (2= occasionally, 3 = frequently)	
ignores both task and parent	.92
asks parent for instructions	.96
asks parent for help or participation	.93
asks reason for doing task	.93
says "I don't want to" or "No"	.98
willfully refuses to do task or resists task	.97
tries to distract the parent	.93
follows the parent's directions	.94
Child has tantrum	1.00

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Behavior	Inter - rater reliability
Child self-regulation	
touches forbidden new toys	1.00
touches food	1.00
Child techniques during forbidden toy task	
appears to be unaware of new toys,plays with old toys	.89
visually attends to new toys	.91
whines and begs for new toys	.96
use self regualtion techniques - deliberately	
turns back on toys, holds hands, etc.	.98
Parent investment in child's compliance -- the parent's	
insistence on the child's compliance	.97
1. Parent gives up; verbally or by tone says there is no reason to do the task	
2. parent is ambivalent	
5. parent verabally states it is important for the child to comply and/or persists in getting the child to comply	
Parent involvement in task completion	.97
1. stays in the chair and tells the child once or twice	
2. stays in the chair or at a distance and continues to direct the child	

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Behavior	Inter - rater reliability
3. models the task for the child	
4. makes task into mutual game	
5. does task for the child	
Parent's techniques during compliance tasks (1 = never, 2 = occasionally, 3 = frequently)	
makes task into a game	.93
models task	.96
verbal direction	1.00
physical contact with the child	.93
non-verbal directions	.95

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Table 3

Comparison of Child Compliance and Parental Control in the Three Family Groups[a]

Behaviors	Family Groups: High Quality center		Low Quality center		No center	
Child complies						
18 months	9.63	2.07	9.13	.64	9.63	2.97
24 months	9.38	2.00	10.50	1.87	10.88	1.81
30 months	13.88	.64	12.83	1.83	11.88	3.09
36 months	12.75	1.66	10.80	2.78	12.50	2.62
Child resists temptation						
18 months	2.8	.46	2.2	.81	2.5	.51
24 months	2.8	.52	2.4	.75	1.3	.83
30 months	2.9	.83	3.0	.63	2.8	.71
36 months	2.8	.53	2.8	.51	2.9	.71
Child resists tasks						
18 months	25.63	13.64	25.00	5.20	30.00	15.21
24 months	34.88	17.80	23.00	3.57	21.88	2.17
30 months	22.00	8.00	20.33	3.83	19.13	3.97
36 months	27.00	14.65	22.20	5.31	20.00	3.85
Parental investment in child compliance						
18 months	46.75	9.67	44.75	8.24	56.25	10.55
24 months	56.00	10.94	49.50	7.09	48.75	3.01
30 months	48.25	3.41	48.67	3.93	47.38	4.10
36 months	55.00	10.71	50.80	6.91	47.50	5.18

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	Family Groups					
	High Quality		Low Quality		No	
Behaviors	center		center		center	
Parental involvement in child compliance						
18 months	13.38	7.17	14.00	2.83	14.63	7.01
24 months	17.37	9.30	12.83	3.06	9.75	1.98
30 months	9.87	2.58	11.33	2.42	11.00	3.12
36 months	15.63	7.62	11.80	1.64	10.75	2.38

[a] Composite frequencies are tabled.

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Table 4

Individual Parental Techniques

Parental Technique	df	Mean Square	F	p
Game				
Age	3	1.330	1.406	ns
Setting	2	3.910	2.390	ns
Interaction of age and setting	6	2.815	1.721	ns
Residual	77	1.636		
Total	88	1.754		
Model				
Age	3	6.591	2.706	.05
Setting	2	.025	0.010	ns
Interaction of age and setting	6	1.284	1.284	ns
Residual	77	2.436		
Total	88	2.569		
Verbal Instructions				
Age	3	0.716	.413	ns
Setting	2	2.108	1.217	ns
Interaction of age and setting	6	3.746	3.746	ns
Residual	77	1.733		
Total	88	1.846		
Physical Contact				
Age	3	4.148	3.070	.033
Setting	2	2.144	1.587	ns
Interaction of age and setting	6	1.545	1.144	ns
Residual	77	1.351		
Total	88	1.488		

table continues

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Parental Technique	df	Mean Square	F	p
Nonverbal Instruction				
Age	3	1.369	1.106	ns
Setting	2	3.059	1.611	ns
Interaction of age and setting	6	3.477	1.831	ns
Residual	77	1.899		
Total	88	2.018		
Coax				
Age	3	1.422	1.620	ns
Setting	2	1.097	1.250	ns
Interaction of age and setting	6	1.733	1.975	ns
Residual	77	.878		
Total	88			
Praise				
Age	3	1.963	0.829	ns
Setting	2	8.885	3.753	.028
Interaction of age and setting	6	8.659	3.657	.003
Residual	77	2.367		
Total	88	2.931		
Criticism				
Age	3	1.188	1.732	ns
Setting	2	1.233	1.798	ns
Interaction of age and setting	6	0.575	0.839	ns
Residual	77	0.686		
Total	88	0.704		
Investment				
Age	3	57.089	0.972	ns
Setting	2	79.341	1.351	ns
Interaction of age and setting	6	153.943	2.622	.023
Residual	77	58.713		
Total	88	65.726		

table continues

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Parental Technique	df	Mean Square	F	p
Involvement				
Age	3	46.949	1.840	ns
Setting	2	51.839	1.956	ns
Interaction of age and setting	6	41.403	1.562	ns
Residual	77	26.498		
Total	88	28.779		
Positive affect				
Age	3	27.288	0.960	ns
Setting	2	241.512	8.501	.000
Interaction of age and setting	6	53.108	1.869	ns
Residual	77	28.410		
Total	88	34.878		
Negative affect				
Age	3	46.553	.867	ns
Setting	2	150.075	2.793	ns
Interaction of age and setting	6	40.222	.742	ns
Residual	77	53.725		
Total	88	54.685		

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Table 5

Child:	involves	resists task	complies	self regulato
s				
	parent			
Parent:				
Game	-	-	-	.19
Models	-	.20	-.34	-
Vebal instruct	-	.20	-	-
Physical Contact	-	.22	-.23	-
Non-verbal Contact	.20	.21	-	-
Coax	-	-	-	-
Praise	-	-	-	-.18
Criticsm	-	-	-	-

Child:	involves	resists task	complies	self regulat
s				
	parent			
Parent:				
invested	.68	.69	-	-
involved	.71	.81	-.19	-
positive affect	.65	.66	-	-
negative affect	.81	.87	-	-

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